

CLASSIFIED MESSAGE

SECRET

25X1
 UNIT :
 25X1
 DATE: 17 SEPT 71

D/M/OSA

17 SEPT 71

TO :

FROM:

CONF:

INFO:

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3	D/M/OSA	11	
4	D/SA	12	
5	D/O/OSA	13	
6	IDEA/D/OSA	14	
7	SAS/O/OSA	15	
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DEFERRED		PRIORITY	INITIALS
ROUTINE		OPERATIONAL IMMEDIATE	INITIALS

17 SEPT 71

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TO

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SUBJECT: NEW "H" AND "B" LENSES

1. IN VIEW OF THE NEW RESTRICTIONS THAT HAVE BEEN IMPOSED WITH THE REINSTITUTION OF TACKLE MISSIONS, WE FEEL IT MAY BE APPROPRIATE AT THIS TIME TO PROVIDE YOU A BRIEF STATUS OF THE IMPROVED LENSES THAT ARE BEING DEVELOPED FOR BOTH THE "H" AND "B" SENSORS. THE QUESTION WILL UNDOUBTEDLY ARISE, IF NOT ALREADY, REGARDING THE OBVIOUS DEGRADATION IN RESOLUTION ANTICIPATED WITH THE INCREASED DISTANCES FROM TARGETS, AND WHAT, IF ANYTHING, IS IN PLANNING THAT COULD POSSIBLY COUNTERACT THIS SITUATION.

2. AS YOU MAY OR MAY NOT BE AWARE, PROJECT HEADQUARTERS CONTRACTED, DURING THE THIRD QUARTER OF FY 1971, FOR THE DEVELOPMENT OF IMPROVED LENSES; INCORPORATING CURRENT STATE-OF-THE-ART AS PERTAINS TO COLOR CORRECTION, ETC., FOR INSTALLATION IN BOTH THE "H" AND "B" SENSORS.

COORDINATING OFFICERS

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3. LATEST INFORMATION AS TO AVAILABILITY OF THESE LENSES, FOR SUBSEQUENT INSTALLATION AND FLIGHT TESTING, INDICATE THE "H" SHOULD BE READY FOR FLIGHT TESTING IN LATE JANUARY OR EARLY FEBRUARY 1972. DELIVERY OF AN OPERATIONAL SENSOR WITH THIS LENS INCORPORATED TO DETACHMENT "H" IS TENTATIVELY SCHEDULED DURING THE PERIOD OF LATE MARCH/EARLY APRIL 1972. A "B" SENSOR WITH THE NEW LENS INSTALLED SHOULD COMPLETE FLIGHT TESTING DURING THE MARCH/APRIL TIME FRAME WITH TENTATIVE DELIVERY TO DETACHMENT "H" IN MAY 1972.

4. THE SIGNIFICANCE OF THESE NEW LENSES, APPLICABLE TO BOTH THE "B" AND "H", CAN BEST BE EXPLAINED AS A THEORETICAL IMPROVEMENT OF APPROXIMATELY 30% IN RESOLUTION, AND GREATLY IMPROVED IMAGE MODULATION (ACUITY). ALTHOUGH THE RESOLUTION IMPROVEMENT IS IMPORTANT, IN ALL PROBABILITY THE MOST SIGNIFICANT IMPROVEMENT IS IN THE AREA OF IMAGE MODULATION, THIS BEING THE DIRECT RESULT OF COLOR CORRECTION TECHNIQUES BASED ON CURRENT STATE-OF-THE-ART DEVELOPMENT.

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5. WITHOUT GETTING TOO TECHNICAL, THE FOLLOWING COMPARATIVE RESOLUTION DATA, BASED ON THEORETICAL CALCULATED INFORMATION IN A CONTINENTAL POLAR AIR MASS, IS PROVIDED:

- A. AT NADIR, PRESENT "B" LENS 18"; MODIFIED "B" LENS 13".
- B. AT NADIR, CURRENT "H" LENS 9"; MODIFIED "H" LENS 6".
- C. AT AN OBLIQUE RANGE OF APPROXIMATELY 40 MILES FROM TRACK, CURRENT "B" LENS 120"; MODIFIED "B" LENS 80". CURRENT "H" LENS 63"; MODIFIED "H" LENS 38".

IN THE OPERATIONAL ENVIRONMENT THIS WOULD INDICATE THAT FROM A THEORETICAL STANDPOINT RESOLUTION AT 40 MILES WITH THE MODIFIED "H" LENS WILL BE AS GOOD AS RESOLUTION ON THE CURRENT LENS AT 34 MILES: IN TERMS OF THE "B" AS GOOD AT 40 MILES WITH THE MODIFIED LENS AS THE CURRENT LENS IS AT 33 MILES. THE ABOVE STATISTICS REFLECT APPROXIMATE THEORETICAL DATA IN RESOLUTION ONLY.

6. IT IS OUR CONSIDERED OPINION THAT ALTHOUGH IMPROVED RESOLUTION IS SIGNIFICANT, THE IMAGE MODULATION, FROM A PI STANDPOINT, WILL RESULT IN GREATER SIGNIFICANCE AS A RESULT OF COLOR CORRECTED LENSES.

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Form 8a

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ROUTING

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THE IMPROVEMENT IN TARGET DEFINITION AND QUALITY THROUGH THE
REDUCTION IN FUZZ (GRAY AREAS) ASSOCIATED WITH IMAGE MODULATION NOT THE
DIRECT RESULT OF HAZE WILL BE MOST APPARENT.

7. IT IS HOPED THAT ALTHOUGH SOMEWHAT TECHNICAL IN NATURE, THIS
WILL AT LEAST PROVIDE YOU TALKING MATERIALS
WHO MAY EXPRESS RESERVATIONS RELATIVE TO PHOTOGRAPHY RESULTING
FROM THE NEW RESTRICTIONS IMPOSED ON OPERATIONAL ACTIVITY.

END OF MESSAGE

D/O JW

COORDINATING OFFICERS

WENDELL L. BEVAN
D/SA

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D/USA

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